



## THE BULLER PHENOMENON IN A BIPOLAR BASIDIOMYCETOUS MUSHROOM, *PHOLIOTA NAMEKO*

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### ABSTRACT

The nuclear behavior in the Buller phenomenon of a bipolar mushroom, *Pholiota nameko*, was examined using auxotrophic mutant strains to demonstrate the involvement of nuclear selection rules in dikaryotization by di-mon matings. During compatible di-mon mating of a parental monokaryon and a parental dikaryon, dikaryotization of the monokaryotic mycelia occurred. We speculated that only one nucleus of the two nuclei from the parental dikaryon was selected, and the dominant nucleus migrated into the parental monokaryon to complete dikaryotization. The hierarchy of dominance of the three nuclei from dikaryotic strains tested during such di-mon mating was established. The hierarchy was the same as that for mycelial and oidial monokaryotization. In hemi-compatible di-mon mating, the nucleus of the parental dikaryon complementary to the parental monokaryon could be the nuclear donor in dikaryotization. However, when the complementary nucleus was lower on the hierarchy than the nucleus of the dikaryon, then 0% to 50% of the samples isolated from the parental monokaryon side of the colony had completed dikaryotization. Furthermore, similar nuclear selection rules that apply to compatible di-mon mating may operate in hemi-compatible di-mon mating. The crossing between a parental monokaryon and monokaryotic cells produced by mycelial monokaryotization of a parental dikaryon occurs at times during what seems to be di-mon mating in this mushroom.

**Key words:** Buller phenomenon, *Pholiota nameko*, auxotrophic strains.